The
VETERINARY RECORD
Founded by William Hunting, F.R.C.V.S., in 1888
7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1. MUSEUM 6541

No. 17 APRIL 23rd, 1955 Vol. 67.
Registered for Transmission as a Newspaper *Price: 2s. post free*

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Correspondence

IT has been observed that the vitality of a publication may be gauged from the extent of its correspondence, and the quantity of its advertisements. Judged on these criteria we have grounds for a degree of satisfaction and, in particular, it is gratifying, in recent issues, to note the resurgence of clinical and scientific correspondence.

It is hoped this may continue and, indeed, increase. In particular communications from veterinary surgeons in private practice will be most welcome. At a time when the pressure of work seems constantly to be increasing, and the shortage of qualified assistants, together with the requirements of national service, bear heavily upon principals, it is not to be expected that time can often be found to write full-length clinical papers—desirable as these continue to be. But the letter to the Editor offers to clinicians an opportunity to share with their colleagues part of that vast accumulation of experience which is possessed by every mature veterinarian. Thus is the art—as different from the science—of our calling preserved, and our literature enriched.

Another feature of our correspondence columns, which has exhibited all down the years something approaching consistency, comprises the hortations levelled at the Royal College. Currently the Royal College is taken to task over the removal of some senior names from the Register, and generous emotions are aroused. It is tacitly assumed that these gentlemen are the victims of a sort of tyranny, though the number who might suffer genuine hardship from the annual levy of one guinea upon elderly retired members of the profession must surely be a tiny minority?

Of course, lambasting the Royal College is a tradition, like criticising the Government. William Hunting was a notable advocate of it. Just 50 years ago this week, we find one of his acid comments on THE RECORD'S first page: "The special meeting of Council. We publish the proceedings, but are afraid to comment on them. They should be read as an object lesson, and a mental note made for action when some of the speakers appeal for re-election."

One may surmise that after half a century and more of this kind of thing, the Royal College is fairly well inured! What seems, perhaps, to be surprising, is the contrast between the interest expressed in this matter, and that over the scheme for animal nurses. The latter, surely, is of infinitely greater moment to the general body of our readers? Yet to judge by the correspondence received, it excites comparatively little controversy. But perhaps, in the broad view, warm hearts are better than long heads any day.

An Unusual Mouth Condition in Sheep

BY

P. L. SHANKS and L. G. DONALD

North of Scotland College of Agriculture

IN early March, 1954, two ewe hoggs were brought to the laboratory from the College farm at Glensaugh, now tenanted by the Hill Farming Research Organisation. These hoggs were unable to close their mouths and both were in such poor condition that they had probably been affected for some time and had lost weight through their inability to eat. The distance from the tip of the incisor teeth to the dental pad was 1½ inches in the worse case and 1 inch in the other. The information was supplied that quite a number of the 133 ewe hoggs were similarly although not so severely affected.

On clinical examination both sheep were severely emaciated and weak. Both showed hyperexcitability with trembling of the lips and head. It was impossible even with considerable force to close the mouth. The lower jaw appeared to be shot forward and dropped anteriorly. Looking into the mouth the last molar in the lower jaw was in contact with the second last molar in the upper jaw. Lateral movement of the jaw was free. Up and down movement was also free but limited. There was no muscular spasm associated with the condition nor was there any palpable abnormality of the mandibular joint. Attempts to push the lower jaw back to what was considered a normal position proved impossible. Even under nembutal anaesthesia it was impossible to reduce the abnormality. During the course of manipulation it was found that the ramus of the mandible crushed readily. Blood samples were taken for examination for calcium, phosphorus and magnesium. The calcium and magnesium figures proved normal but one sample showed a low phosphorus figure (2.75 mg. per 100 ml.). X-ray examinations of these and other affected ewe hoggs carried out by the Rowett Research Institute revealed a gross mineral deficiency in the jaw bone and the long bones of the limbs.

A month later further blood examinations were carried out and from 21 affected hoggs five showed calcium values under 9 mg. per 100 ml., one being as low as 7.9 mg. per 100 ml., while examination for inorganic phosphate showed two under 4.5 mg. per 100 ml. These blood samples were taken a month after steamed bone flour had been provided and do not give a true picture of the position in March.

The hogg most severely affected died five days after admission in spite of being fed milk. The second hogg survived on a milk diet for 10 days longer. Injections of vitamin A and D concentrate and the injection of calcium, magnesium and phosphorus failed to promote recovery in these two animals although another case at Glensaugh treated similarly by the local veterinary surgeon made a temporary response.

A *post-mortem* examination carried out on these two animals revealed no obvious abnormality. There was a small amount of gelatinous fluid around the mandibular joint but the joint itself appeared normal. It was only after all the muscles around the joint had been cut that it was possible to put the lower jaw into the closed position.

On examination of the hoggs at Glensaugh a total of 43, about one-third, were found affected. The majority could be recognised by the fact that they were hyperexcitable, showing tremors of the face, lips and head, while a few showed a distinct "string-halt" action. All had wet lower lips due to the dribbling of saliva from the mouth. The gap between the incisor teeth and the dental pad varied from about one-quarter to one-sixteenth of an inch, and it was only in the latter that the mouth could be forcibly closed.

Since the condition appeared to be associated with a calcium and phosphorus deficiency the hoggs were given steamed bone flour sprinkled over trough food and in addition were injected with concentrated vitamins A and D.

The loss in weight which had been progressive since the November weighing was found to be arrested when the hoggs were weighed as usual at the end of March. Although all the animals had not completely recovered the hyperexcitability had disappeared and the sheep "handled" better. Subsequently complete recovery occurred in all but one of the hoggs. This was the hogg which was treated initially by the local veterinary surgeon and which made a temporary response. It died from starvation through inability to eat food before complete recovery took place. Thus only the three worst cases died.

Enquiries into the history of the grazing of these hoggs revealed the probability of a gross calcium and phosphorus deficiency as shown by the following statistics of the management of the lambs and the pasture.

TABLE I—MANAGEMENT OF EWE HOGGS

Finella Hill	29 days	13th August to 11th September
Finella Reseed	38 days	11th September to 19th October
Loch Hills	25 days	19th October to 13th November
Finella Reseed	22 days	13th November to 5th December
Loch Hills	79 days	5th December to 22nd February

TABLE II—SOIL ANALYSIS

Finella Hill and Finella Reseed	Lime very low	Phosphate very low
Loch Hills	Lime satisfactory to slightly low	Posphate slightly low

TABLE III—MANURING OF FINELLA RESEED
(ploughed and sown in May, 1954)

1½ cwts. Muriate of potash	June 17th
10 cwts. Basic slag	June 18th and 19th
4 tons ground limestone	June and July
2 cwts. Nitro-chalk	July 27th
2½ cwts. Nitro-chalk	August 18th

Weights of Hoggs

For the purpose of this Table and to avoid a huge number of individual figures the hoggs were classified as having normal, slightly abnormal and definitely abnormal mouths and a random selection of 10 from each group was taken. The average figure for each group is shown together with the actual figures for the three hoggs which died.

TABLE IV—DATES OF WEIGHING AND WEIGHTS IN LBS.

	13.8.53 Weaning Weight	19.10.53	13.11.53	5.12.53	14.1.54	22.2.54	Loss from 13.11.53
Apparently sound	60·2	72·9	76·3	70·3	70·5	64·5	11·8
Slightly abnormal	58·3	69·5	70·9	65·9	64·0	56·2	14·7
Definitely abnormal	56·8	67·6	69·3	62·9	61·6	51·2	18·1
T. 32	65	75	81	67	66	59	22
T. 70	45	54	55	51	44	36	19
T. 4	74	84	91	88	82	75	16

T. 32 was the worst case and was the first to die ; T. 70 was the second worst and second to die, and T. 4 was the one which was treated by the local veterinary surgeon and died a few days later after a temporary recovery.

Discussion

It will be seen from the table of weights that all the hoggs gained weight from weaning until the November weighing which appears to have been the crucial period. Thereafter they lost weight and the loss in weight appears to be related to the degree of severity of the symptoms.

The soil analysis, the dates of artificial manuring and the dates of grazing by the hoggs all appear to be of significance in leading up to the development of the symptoms. The analysis indicates the very low content of both calcium and phosphates in the soil on Finella Hill and the late application of the lime and even the basic slag would suggest that only a small proportion of calcium and phosphorus would be absorbed by the plants. At both times when the hoggs were given the Finella Reseed to graze there was a good growth of young grass. It is assumed, therefore, that the ewe hoggs with an adequate body content of calcium and phosphorus grew normally during the first two months after weaning on Finella Hill and on the Finella Reseed, using up their body store of calcium and phosphorus. During their period on the Loch Hills they were able to maintain this normal development although on the borderline of a calcium and phosphorus deficiency. The crucial period then came with their transfer for the second time to the Finella Reseed where there was a good supply of what appeared to be good grass. At that stage, although flesh was still being put on, the reserves of calcium and phosphorus in the bone were being depleted and this depletion continued with gradual decrease in bodyweight until the February weighing when symptoms were first noticed. Recovery took place when an adequate supply of calcium and phosphorus was provided by the steamed bone flour. No doubt the injections of vitamins A and D also assisted the ewe hoggs to recover.

It is surmised that, if the Finella Reseed had not been grazed or grazed for a much shorter period, the hoggs would not have developed symptoms. Ideally, it would have been better to have grazed the Finella Reseed with adult sheep whose demands for calcium and phosphorus would have been less than growing lambs.

Comments

In view of the fact that the reseeding of marginal land is still being carried out usually with the heavy application of lime and the forcing of the new grass with nitrogenous manures, it would seem necessary to avoid grazing the new grass with young stock during its first year. If young stock are allowed to graze such new pastures they should be supplied with calcium and phosphorus in the form of steamed bone flour or some other source of these minerals.

There is little doubt that if this outbreak had occurred on an ordinary farm, where the ewe hoggs are not brought in monthly for weighing, losses might have been very severe before the condition was recognised. It is possible that many outbreaks occur every year in a less exaggerated or severe form resulting in loss in weight of the young animals over the winter without any obvious symptoms of ill health.

The purpose of this article is, therefore, to emphasise the need for care in the stocking of reseeded pastures.

The exact mechanism of the open mouth condition was not satisfactorily explained but it is suggested that with the demineralisation and softening of the bone the weight of the lower jaw altered the position of the coronoid process, enlarged the mandibular notch and flattened the condyle of the mandible. These alterations occurring at the same time would produce a non-inflammatory condition around the mandibular joint which would lead to the deformity described.

Since the explanation for the condition is only theoretical it was intended that the circumstances leading up to the symptoms would be repeated this year on Glensaugh using experimental groups of ewe hoggs and collecting relevant data from the soil, the pasture and the hoggs. Unfortunately weather conditions proved completely unsuitable and there was insufficient growth in the reseed to support any animals. It is hoped, however, that critical data will be obtained eventually.

Acknowledgments.—Thanks are due to Mr. D. Drummond, B.Sc., Recorder at Glensaugh for the various statistics, to Dr. J. Stewart, of the Moredun Institute, for the chemical analysis of blood samples, and to the Rowett Research Institute for the X-ray examinations.

Blackleg in Pigs Caused by *Clostridium chauvoei*

BY

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and
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THERE exists, so far as we have been able to discover, virtually no bacteriologically acceptable evidence of the isolation of *Clostridium chauvoei* from disease in pigs. Because of this, and because of the difficulty of infecting pigs experimentally with *Cl. chauvoei*, it is generally held that gas gangrene in pigs is almost exclusively caused by infection with *Cl. septicum*.

Meyer (1915) made an extensive investigation of an outbreak of "specific gas phlegmon of hogs" in the United States and showed that this was caused by *Cl. septicum*. In the review accompanying this paper, Meyer doubted whether blackleg in pigs was ever caused by *Cl. chauvoei* and doubted whether this organism had ever been demonstrated in lesions. Heller (1920) came to substantially the same conclusion. Both Hutyra & Marek (1922) and Kolle & Wasserman (1928) stated categorically that pigs were not susceptible to *Cl. chauvoei*. Glässer, Hupka & Wetzel (1950) concluded that chauvoei infection had not yet been demonstrated in pigs, and that these animals were not susceptible to experimental infection.

More recently, Eggleston (1950) described an outbreak of blackleg in pigs and stated "cultures made from the muscles produced a growth of an organism resembling that of blackleg." The culture was lethal for guinea-pigs, but not for rabbits. This is the complete description given of the organism encountered. Orfeur & Hebeler (1953) saw what appeared to be a typical outbreak of blackleg in pigs from which only *Cl. septicum* was isolated. *Cl. oedematiens* has also been found in blackleg-like conditions in pigs; but, except for the suggestive findings of Eggleston, we have not been able to trace an unequivocal association of blackleg in pigs with *Cl. chauvoei*.

The present note describes an outbreak of blackleg in pigs in which *Cl. chauvoei* was isolated from the affected muscles.

History of Outbreak

The outbreak occurred amongst pigs at a knackery where hygiene was very poor. Cattle had previously been kept there, but this practice was discontinued because of exceptionally severe losses from *Cl. chauvoei* infection.

A considerable number of cases of blackleg occurred at intervals amongst the pigs. *Cl. septicum* was isolated from one of the early cases. Later, when deaths were occurring every two to three days, inoculation with *Cl. septicum* (Braxy) vaccine was advised. Specimens were received at this laboratory from two pigs (Nos. 1 and 2) which had received two inoculations of braxy vaccine and which later died suddenly and showed deep-seated muscle lesions at *post-mortem* examination. Specimens of muscle from two other pigs (Nos. 3 and 4) which showed typical blackleg lesions were received shortly afterwards.

Bacteriology

Pieces of muscle from four pigs which showed lesions resembling blackleg were examined. In each case material for culture was obtained from the depth of the lesions. The usual precautions were taken against surface and casual contamination. The possibility that the findings were affected by adventitious contamination at the knackery was thus remote.

Pig No. 1

The muscle was somewhat decomposed when it arrived at the laboratories. It was plated directly on to a stiff blood agar plate. Amongst the mixed flora which developed were a few colonies resembling those of *Cl. chauvoei*. One of these was replated and two of the chauvoei-like colonies which grew were picked into glucose-meat-broth. Guinea-pigs injected intramuscularly with 0·5 ml. of the meat broth cultures died overnight. The *post-mortem* appearances were characteristic of *Cl. chauvoei* infection: a deep-red subcutaneous oedema; a spongy, almost black appearance of the muscles; little gas, and a markedly rancid smell. Organisms in smears showed the pleomorphism characteristic of *Cl. chauvoei* or *Cl. septicum*. No filaments or chains were seen on impression films from the liver surface. Blood-agar plates streaked with heart's blood and incubated anaerobically for 24 hours grew colonies morphologically indistinguishable from those of *Cl. chauvoei*.

The colonies were 3 to 5 mm. in diameter, greyish, translucent; many were found with a raised entire edge and central depression. Some were flatter and slightly amoeboid. Haemolysis was slight, and confined to the area under the colony.

Stained films from surface colonies and from meat-broth cultures showed the characteristic pleomorphism of chauvoei or septicum strains. Fermentation tests were carried out with meat-broth cultures from three colonies. All fermented glucose, lactose, maltose and saccharose, and did not ferment mannite, salicin or glycerol.

Pig No. 2

Muscle from this pig arrived in a relatively fresh condition. This was streaked on to stiff blood-agar plates and incubated anaerobically. Most of the numerous colonies which developed were indistinguishable from those of *Cl. chauvoei*. Three colonies were picked into meat-broth.

Fermentation Reactions.—These were identical with those of the isolates from Pig No. 1.

Pathogenicity.—Guinea-pigs infected intramuscularly with cultures died overnight and showed typical lesions of *Cl. chauvoei* infection. Organisms indistinguishable from *Cl. chauvoei* were recovered in pure culture.

Immunological Tests.—Cultures from two colonies from each of Pigs Nos. 1 and 2 were injected into normal and chauvoei-immune guinea-pigs. All the normal guinea-pigs died in 24 hours with lesions characteristic of *Cl. chauvoei* infection. All the immune guinea-pigs lived and showed no reaction to the infection.

Further protection tests were carried out in mice with cultures from a colony from each pig. The results are summarised in the table.

TABLE

PROTECTION TESTS IN MICE

Mice immunised with 0·5 ml. subcut. hyperimmune horse serum against	Challenged after 24 hours with 0·25 ml. i.m. 24-hour culture	Result*
Cl. chauvoei	Culture from Pig 1	5/5
Cl. septicum	" " 1	2/5
Not immunised	" " 1	0/5
Cl. chauvoei	" " 2	5/5
Cl. septicum	" " 2	4/5
Not immunised	" " 2	0/5
Cl. septicum	Culture of *Cl. septicum*	8/10
Cl. chauvoei	" "	0/10
Not immunised	" "	0/10

* Numerator = Number of survivors.
Denominator = " animals in test.

Thus, mice passively protected with an anti-chauvoei serum were completely immune to the organisms isolated from these two pigs. The anti-chauvoei serum was ineffective against a challenge with *Cl. septicum*; whilst an antiserum against *Cl. septicum* gave partial protection against the pig strains. This is a characteristic example of the type of result expected with *Cl. chauvoei* and *Cl. septicum* and confirms the identification of the isolates from the pigs with *Cl. chauvoei*.

The only pathogenic organism found in the characteristic blackleg lesions in the muscles of the other pigs examined (Nos. 3 and 4) was *Cl. septicum*. Its predominance in the lesions—particularly in the case of Pig No. 4—left little doubt as to its being the cause of the disease.

Discussion

The majority of outbreaks of blackleg in pigs are currently accepted as being due to infection with *Cl. septicum*: a view which is fully justified. However, in the outbreak described here, two cases of blackleg were undoubtedly caused by *Cl. chauvoei*, although other cases in the same outbreak were found to be due to infection with *Cl. septicum*. In order to assess the significance of the presence of *Cl. septicum* in a lesion, an estimate of the number and proportion present is of considerable importance. Direct plating of suspect material on to stiff blood agar plates has proved invaluable in making such estimates possible.

The past history of the premises in which the pigs were kept suggests a particularly severe exposure to infection. Subsequently, immunisation with a mixed septicum-chauvoei vaccine together with improved management ended the severe losses.

Summary

Muscle specimens were examined from four cases of blackleg in pigs. *Cl. septicum* was found to be the cause in two, whilst from the other two *Cl. chauvoei* was isolated in circumstances which left no doubt that it was the cause of the lesions.

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FIFTY YEARS AGO

As a footnote to an abstract, a contributor to THE RECORD dated April 22nd, 1905, wrote as follows:—

The translator ventures to add the following clinical notes on the use of yeast. An old country farrier had a great reputation for success with redwater and his treatment was a quart of barm with many mysterious rites and a few simple placebos, but following his footstep the barm had to be given in spite of its apparent contra-indication and it was surprising to notice that benefit followed its use, so that in the more benighted parts of the district it was adopted as routine treatment and frequently used with benefit in other cases.

Some three years ago I was suffering from a bilious form of malaria combined with dysentery, and struggling to get through my work in spite of it when one noonday, being almost in a collapse from thirst, I sent for "brandy sharab." After a prolonged and unnecessary absence such as the Indian servant loves to indulge in, he returned with a "beer sharab," known in college days as a bottle of Bass, and a smile.

Hunger, it is said, knows no laws, and I know that thirst does not.

For a moment I hesitated whether to smite him over the head with it as an ordinary idiot or to drink it and die or live. I chose the latter and more noble course, and much to my astonishment virtue was rewarded, dysentery and bilious colic were both relieved in a few hours, and instead of being driven in the evening to the hospital as a preliminary to a trip to the cemetery, I went to the wine merchant and bought what my temperance training always taught me to look upon as poison, a case of bottled beer, which I prescribed for myself, oz. xx b.i.d., and in a week my three months' malady was gone.

If yeast was contra-indicated for a tympanitic cow, certainly to drink beer for bilious fever and dysentery seemed the act of a madman, yet *fiat experimentem in corpore vili*. F. E. P.

The Immunising Power of Penicillin-treated Vaccine Cultures of the Causal Organism of Contagious Bovine Pleuropneumonia

BY

R. W. WHITE

Department of Animal Production, Khartoum

IT has previously been shown (White, 1954) that penicillin is largely effective in preventing contamination of cultures of *Asterococcus bovis* (*A. mycoides*), and that penicillin-treated cultures of attenuated organisms of this species are safe for use as vaccine.

The object of the work recorded here was to determine whether penicillin has any adverse effect on immunising power.

Blood samples from all experimental animals were subjected to the flocculation test for contagious bovine pleuropneumonia (Priestley, 1951) and found to be negative immediately prior to use. The challenge to which animals were exposed consisted of the intramuscular injection of 1 ml. of virulent culture behind the shoulder. Animals showing no reaction to challenge at any time up to 35 days later were regarded as immune.

Results

In a small preliminary experiment, vaccine was prepared and inoculated subcutaneously as described previously (White, 1954). The treated vaccine had been dosed twice with penicillin at a level of 100 units per ml. each time.

Some 35 days after vaccination, the animals were challenged. Of 11 animals receiving penicillin-treated vaccine, five reacted and of these two died ; of 10 animals receiving untreated vaccine, only one reacted and this died.

The difference in these results is not statistically significant ($\chi = 3{\cdot}226$), but it was felt that the question had not really been answered. Accordingly a trial on a larger scale was designed.

At this time work on the tail tip method of vaccination was in progress (Priestley, 1955), and advantage was taken of this to retest the effects of penicillin treatment, but using a vaccine of this type.

The vaccine consisted of a fifth generation culture from lymph, having been subcultured at two-day intervals. For the experiment, this culture, with and without penicillin was used, penicillin being applied at a level of 200 units per ml. once, at sowing only. Total incubation time was 15 days, bottles of culture being corked after two days' incubation. The dose of vaccine was 0·2 ml. inoculated near the tip of the tail.

A total of 100 bulls was used ; 50 bulls received penicillin-treated vaccine and 50 received untreated vaccine. All the vaccinations were done on one day by one person, and all the bottles of each vaccine were pooled before use.

During the early part of this experiment, four animals from each of the two vaccine groups were lost from liver fluke infestation or other causes. Of the remaining 46 animals inoculated with penicillin-treated vaccine, seven reacted more or less severely and of these one died ; while of the 46 animals inoculated with untreated vaccine, 10 reacted and of these two died. Local reactions to vaccination consisted of swellings of greater or lesser severity up the tail, with sloughing of part of the tail, and involvement of part of the hindquarters in some cases.

Twenty-seven days after vaccination the surviving 89 vaccinated animals, together with eight unvaccinated controls were challenged, with the results shown in the Table. Three animals in each vaccine group reacted and one died in each case. Four of the challenge controls reacted and one of these died.

TABLE

COMPARISON OF IMMUNISING POWER OF PENICILLIN-TREATED AND UNTREATED CONTAGIOUS BOVINE PLEUROPNEUMONIA CULTURE VACCINE

Vaccine	Vaccination		Challenge	
	Total bulls	Reactors	Total bulls	Reactors
Penicillin-treated...	46	7 (1d)	45	3 (1d)
Untreated... ...	46	10 (2d)	44	3 (1d)
Challenge controls	—	—	8	4 (1d)

" d " in final column = died. All bulls challenged 14.6.54.
All bulls vaccinated 18.5.54. Experiment concluded 21.7.54.

No statistical analysis of this experiment is needed to show that penicillin had no adverse effect on immunising power.

Discussion

The use of the type of vaccine and site of inoculation described in the large experiment was not deliberate in relation to the testing of penicillin-treated cultures, but arose from integration with other work proceeding at the time.

The level of penicillin dosing used in the large experiment was double that applied at any one time in previous work with penicillin-treated vaccine. In a great deal of experimental work here, cultures of *A. bovis* have received 200 units per ml. of penicillin, at sowing, as a matter of convenience (such cultures are not normally corked), and dosage up to this level may be used in work on the production of a freeze-dried vaccine (Priestley, 1955). Any effect on immunising power by penicillin would presumably be operative during growth of the organisms, the use of the higher level initially would therefore be likely to aggravate such an effect if it occurred. As is well known (see, for instance, White, 1952), penicillin rapidly disappears from cultures during incubation.

Summary

Experiments in cattle were carried out to compare the immunising power of penicillin-treated, with that of untreated contagious bovine pleuropneumonia culture vaccine. No difference could be detected. In the main experiment done, of 46 cattle inoculated with penicillin-treated vaccine, 43 were shown to be solidly immune to subsequent challenge ; and of 45 cattle inoculated with untreated vaccine 43 were immune.

Acknowledgments.—Assistance was received in many ways from the professional staff of the Research Laboratory of the Department of Animal Production here. In

(Concluded at foot of col. 1, page 317)

A Plastic Wound Dressing

BY

P. S. LAMBERT

Chester

NEW methods of wound dressing have been reviewed in the medical journals. These have consisted of the application of a plastic preparation, usually an acrylic resin in a solvent. One such compound has been supplied to me for clinical trial.

Nobecutane was developed by A. B. Bofors Nobelkrut in Sweden and has been subjected to trial in human surgery both there and in this country. It is a clear, viscous liquid of an acrylic resin dissolved in acetate esters. It dries and hardens, after application, to form a tough and transparent membrane. The manufacturers claim that their product allows gas and moisture transfer, but resists the penetration of bacteria. Certainly, in my experience, the skin does not become moist or eczematous, even after several weeks of lying beneath a film.

In its fluid form, Nobecutane is said to be free from both aerobic and anaerobic bacteria and to be slightly bactericidal.

Application

Application is by means of a brush or a piece of gauze, and the manufacturers have now developed a canister for spraying.

Clinical Uses

The dressing has been used for application to operation sites. This may be done either pre-operatively or post-operatively. Haemostasis must be complete in the latter case, so in veterinary surgery, where inability to restrict movement often leads to slight seepage of blood through surgical wounds, application is better left until a few hours after the operation. The application is especially useful where an animal is a "wound-licker" and the film will definitely assist the continued apposition of the skin edges.

The most useful application in veterinary practice is to spray the dressing between each layer of bandage and between skin and bandage. For such common but difficult tasks as bandaging tails (especially those of greyhounds) or legs, especially in cats, it is incomparable. What is virtually a semi-flexible cast is formed; a badly lacerated foot in a cat was dressed at only weekly intervals, for six weeks. On only one occasion did the cat remove the bandage before redressing. Sulphanilamide powder was applied to the leg, then Nobecutane, then a Tubegauz bandage with Nobecutane between each layer. A similar technique on a tail will keep a very firm bandage for three weeks without removal. This is especially useful in "broken tails" in greyhounds.

A further use which is of great assistance in veterinary practice is the protection of plaster casts from softening, either from rain or from urination.

The annoying necrotic areas which develop so commonly on the tips of Boxers' or Labradors' ears as the result of head shaking from otitis, have not been sufficiently protected by a film of Nobecutane. In my experience, the tremendous flick imparted to the ear is too much, even for the tough film of plastic.

This preparation has also been tried on the eroded areas which develop on dry-nosed dogs. Here again, I have found it unsatisfactory for prolonged clinging power.

Other uses will no doubt be developed, but it is a most useful product for selected cases and excellent for bandaging techniques with tubular bandages.

particular, acknowledgment is due to Mr. T. M. Leach, M.R.C.V.S., D.V.S.M., and to Nazeer Eff. Dafaalla, DIP. VET. SCI., DIP. BACT. (VICT.). Hassan Eff. El. Faki rendered valuable technical assistance. Mr. F. W. Priestley, M.R.C.V.S., DIP. BACT. (LOND.), Chief Veterinary Research Officer, made the completion of this work possible by direction and encouragement, and with statistical evaluation of results. The permission of the Director of the Department of Animal Production, Sudan, Mr. J. T. R. Evans, B.SC., M.R.C.V.S., to publish this article is acknowledged with thanks.

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EUROPEAN HORSE TRIALS

The following have now accepted an invitation from the British Horse Society to go into training with a view to possible selection for the team which will be defending the European title, for the second year, at the European Horse Trials. These will be held in Windsor Great Park from May 18th to 21st.

Major Frank Weldon, M.V.O., M.B.E., M.C., R.A., with his Kilbarry. Miss Diana Mason with her Tramella. Major Laurence Rook, M.C., with Mrs. Baker's Starlight. Lt. Commander J. S. K. Oram, R.N., with Miss J. Johnson's Radar. Mr. A. E. Hill with his Countryman.

Colonel J. A. Talbot-Ponsonby is training the team for the Show Jumping Phase, and Colonel and Mrs. V. D. S. Williams will advise on the training for the Dressage and Speed and Endurance Phases. It will be recalled that Major Weldon captained the team which won at Basle last year, while Miss Mason was first in the Dressage Phase. Major Rook won the European Individual Title at the Olympic Horse Trials at Badminton in 1953.

The Veterinary Services in the U.S.S.R.*

BY

YURI GOLOSHCHAPOV

Assistant Chief of the Central Administration of Animal Husbandry and Veterinary Science of the U.S.S.R. Ministry of Agriculture

THE veterinary services in the U.S.S.R. carry out veterinary and sanitary inspection of livestock breeding at State and collective farms, in the meat-dressing and packing industry, in transport, the trade network, and so on, and also protect the population against diseases common to man and animals.

Veterinary aid is given free of charge in the Soviet Union. Animals are given treatment both in polyclinics and hospitals, as well as directly on the farms.

All veterinary work is carried out in conformity with the Government's Veterinary Regulations which oblige the management of State farms, collective farms, and other organisations to take timely measures to ensure veterinary aid in all cases of sickness among animals. All animals when first brought to the appropriate veterinary organisation must undergo 30 days' quarantine. Veterinary surgeons and their assistants have access to the animals for purposes of inspection, diagnostic examinations, preventive inoculations, and other medical and prophylactic treatment. Animals that have not undergone the preliminary quarantine may not be housed in the general cattle-sheds nor joined to the general herds.

In addition, the Veterinary Regulations oblige the owners of livestock, and the management of farms, immediately to inform the veterinary surgeon or his assistant serving the given farm, and also the local officials, of all cases of sudden death or simultaneous sickness of several animals. It is forbidden to use the meat of animals or poultry compulsorily slaughtered, or to sell meat or raw animal products without special permission of a veterinary inspector.

All departments and ministries owning domestic animals arrange their own veterinary service which, however, are under the general supervision of the U.S.S.R. Ministry of Agriculture. The latter is charged with the publication of Orders and instructions on veterinary matters, elaboration of the Veterinary Regulations, and of decisions and directions of the Government. The instructions of the Ministry are obligatory.

In addition to the network of local veterinary establishments, the Ministry of Agriculture has at its disposal a network of veterinary research institutes and experimental stations, industrial enterprises producing biological preparations, and centres of veterinary supplies, as well as other organisations and institutions, including veterinary services and veterinary sanitary sections for transport.

The concentration of veterinary work under a central State service is of great importance in ensuring the welfare of animal husbandry. It makes it possible to carry out all veterinary measures in conformity with uniform plans, elaborated with due

A laboratory connected with the breeding of fur-bearing animals. Professor Sergei Layubashenko, D.SC. (VET.), Stalin Prize "Laureate," and Lyubov Novikova, M.SC. (VET.), are examining the blood of animals kept on the experimental farm of the laboratory.

"Pobeda" Collective Dairy Farm. Prophylactic vaccination of a milch cow by veterinary surgeon Praskovia Bulygina.

*This article was made available by Soviet News Press Service, London.

The Voronezh Preserve, a natural laboratory and a research institute. Four laboratories function on this territory: they study zoology, forestry and botany, mycology and chemistry, in relation to the environment of the most interesting animals and plants.

These laboratory workers are making an analysis of the water on the site of beaver settlements.

consideration of the achievements of science, advanced experience, and also the individual features of any given part of the country.

The State veterinary services are organised territorially. The chief link in these services is the district veterinary service, comprising a veterinary hospital, veterinary sections and posts, and local veterinary institutions.

The service is administered by the chief veterinary surgeon of the district. He is responsible for all veterinary and sanitary conditions, and for the welfare of cattle taken beyond the confines of the district; he also issues certificates permitting the transportation of animals and poultry.

The chief district veterinary surgeon is subordinate to the District Soviet of Working People's Deputies and to the veterinary department of the regional administration of agriculture.

The district veterinary hospital, of which the chief veterinary surgeon is also the director, is a stationary institution. Sick animals may be treated on the dispensary system or may be housed on the premises; complicated surgical operations are performed here. Beside this, specialists from these hospitals visit the different farms in order to carry out medical, prophylactic and veterinary-sanitary measures. The district veterinary hospital also renders practical assistance to the veterinary sections and posts. It is maintained by funds allotted from the district budget.

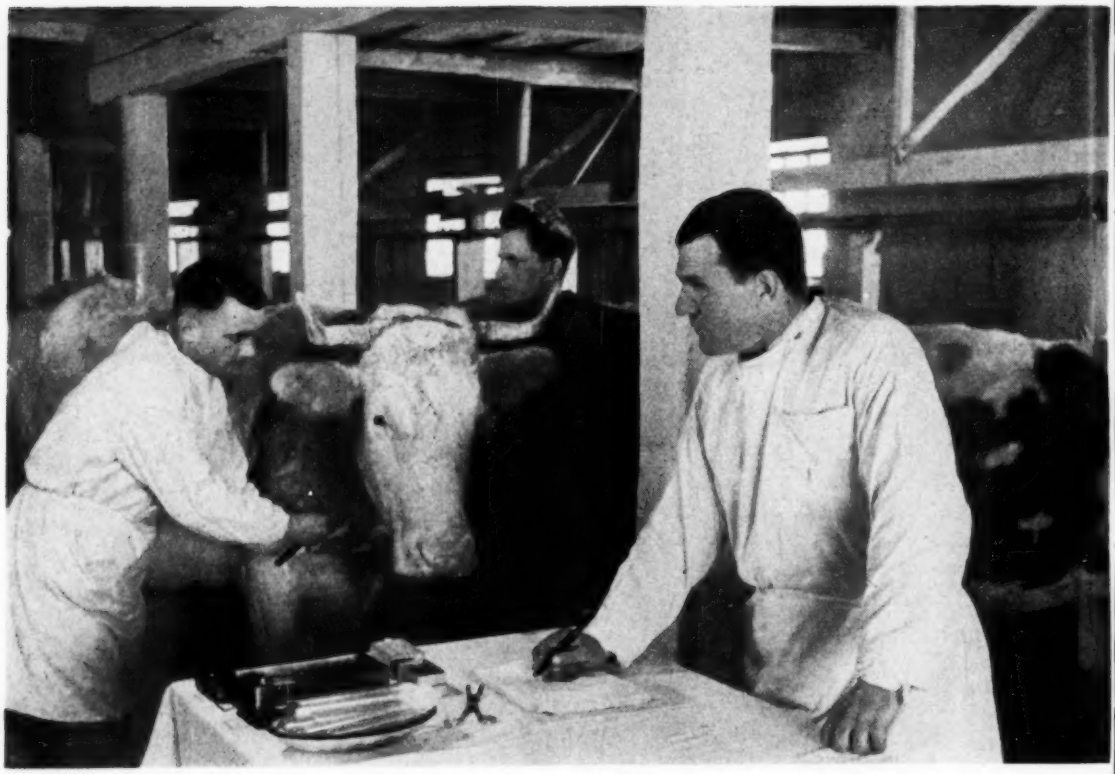
Each district has two to four, or more, veterinary sections, each of which is headed by a veterinary surgeon who serves a group of collective farms and inhabited localities.

In addition to a veterinary hospital, sections and posts, a district may also have meat-control stations which carry out inspection and examination of meat and meat products brought for sale in the market.

In cities, urban veterinary hospitals or polyclinics are organised. They come under the authority of the city authorities, are maintained from the city budget, and subordinated to the chief veterinary surgeon.

The veterinary services of districts and cities are subordinated to the veterinary department of the regional administration of agriculture. At the disposal of this department are regional and inter-district veterinary laboratories.

In the years of Soviet government veterinary science has achieved great successes. Soviet scientists have elaborated effective methods of combating many diseases of animals and poultry. The following biological preparations, submitted by the U.S.S.R.



A Molotov Collective Farm in the Ukraine. The veterinary surgeon, Pyotr Crasnokozh, and zootechnician, Andrei Melnichenko (right), are taking a sample of cow's blood for examination.

Institute of Experimental Veterinary Medicine and many other veterinary research institutes, have been introduced into practice on a wide scale: a vaccine against foot-and-mouth disease, vaccines and serums against hog-cholera and chicken-plague, against paratyphoid and diplococcus infection in young animals, infectious pneumonia in goats, cow-pox, and so on. Veterinary surgeons are successfully using special preparations to improve the health of young animals. Every year, millions of head of cattle are subjected to prophylactic inoculations and other treatment. Thanks to these and other measures, the country's husbandry no longer suffers from a number of dangerous diseases, in particular glanders, cattle-plague, infectious pneumonia of large horned cattle, and anthrax.

FELLOWSHIP AWARDS

Two Fellowships of the Royal College of Veterinary Surgeons have just been awarded. The first is to Mr. John George Ross, for a thesis entitled "A Study of the Zebu Cattle in Teso District, Eastern Province, Uganda." Mr. Ross qualified in 1947 from the Glasgow Veterinary School and has served as a member of H.M. Overseas Civil Service (Veterinary Branch) in Cyprus and Uganda.

The second Fellowship has been awarded to Mr. Alexander William Smith. He qualified in 1934 from the Royal (Dick) Veterinary College, and is at present a Divisional Veterinary Officer of the Ministry of Agriculture. The thesis presented by Mr. Smith was entitled "Observations on the Incidence of Non-specific sensitivity in Cattle."

AILMENTS OF BIRDS, RABBITS, GOLDFISH, AND OTHER DOMESTIC PETS

There appears to be an increasing demand for veterinary assistance in dealing with the ailments of less usual domestic pets such as birds, rabbits, goldfish, etc. It would be helpful if readers who are interested, or who have specialised knowledge, would kindly notify the General Secretary, British Veterinary Association, 7, Mansfield Street, Portland Place, London, W.1, and at the same time state whether they would be prepared to give advice on specific problems to veterinary surgeons who may require their assistance.

A list of names will then be kept at B.V.A. headquarters, and those wishing for advice are invited to apply to the Association.

News and Comment

R.C.V.S. BANQUET

Preparations for the banquet to be held at the Dorchester Hotel, London, on May 12th, which was first announced in our columns on March 26th, are now well advanced. Among the distinguished public figures who have accepted invitations are Mr. Heathcoat Amory, the Minister of Agriculture, Fisheries and Food, and the Duke of Norfolk.

The profession will be widely represented, and those who wish to attend the function are advised to make a prompt application for tickets (price 2 gns. each) to the Registrar of the R.C.V.S.

OVERSEAS MEMBERS

Members of the Association who will be on leave in this country during the summer are requested to notify the General Secretary, B.V.A., No. 7, Mansfield Street, London, W.1. This is in order that they may receive an invitation to attend a meeting of the B.V.A. Overseas Committee to be held on Wednesday, June 22nd, 1955, if there are any subjects on the agenda in which it is thought they may be interested.

THE MAMMAL SOCIETY

The first annual general meeting and conference of the Mammal Society of the British Isles was held at the University College of the South West, Exeter, from April 1st to April 4th, with the President, the Earl of Cranbrook, in attendance. Mr. Ian Linn acted as local secretary, and members were received by Dr. J. W. Cook, Principal of the College, and by Professor L. A. Harvey. The papers presented included: "Deer in the South West" (Peter H. Carne); "The Ranch-Bred Pine Marten" (H. G. Hurrell); "Reproduction in the Silver Fox, Mink, and Marten" (J. H. F. Stevenson); "Some Remarkable Facts about the Distribution of Benelux and British Mammals" (F. van den Brink); and "Some Practical Problems in Small Mammal Studies" (Ian Linn). There was an interesting living demonstration of various British small mammals, and a series of films, including some dealing with current research on the grey seal, the badger, and the mole. Visits were paid to centres where bat-ringing is in progress, and to various places of interest.

At the Annual General Meeting, the report of the provisional committee on the first year of the Society's activities was received. Excellent progress had been made and there were now well over 200 members, including professional and lay zoologists, medical men, veterinary surgeons, and those interested in the control of mammalian pests. Dr. L. Harrison Matthews, F.R.S., Director of the Zoological Society of London, was elected Chairman in succession to Mr. Alastair N. Worden, of Huntingdon, who became Vice-Chairman. The other officers appointed were: Mr. J. Pickvance (University of Birmingham), Hon. Secretary; Mr. H. N. Southern (Bureau of Animal Population, Oxford), Secretary of the Scientific Advisory Committee; Dr. K. M. Backhouse (Department of Anatomy, St. Bartholomew's Hospital Medical School), Conference Secretary; and Mr. H. G. Hurrell, of Wrangaton, Hon. Treasurer. The provisional committee formed at Birmingham a year previously was re-elected *en bloc*, with the exception of Dr. K. R. S. Morris, who tendered his resignation in view of his pending appointment overseas.

HOLIDAY EXCHANGE

There appear to be a number of French veterinary surgeons whose sons and daughters would like to spend part of their summer holidays with British veterinary surgeons and, in return, would like to entertain the British children in their homes.

The following is a list of places where there is a French veterinary family who would like to make this exchange, and any member of the profession who is interested is asked to write as soon as possible to the General Secretary of the B.V.A. for further particulars.

Loiret (Châteaux de la Loire Region): Boy of 13.

Drôme Region: Boy of 15 would like to visit England about July 10th and take back an English boy in August.

Drôme Region: Two girls, free on August 5th, would like to stay *au pair* with one family, or two families near to one another. The elder girl, who is 19, would teach children and help in the house; the younger, 18, would look after children and help in the house.

Yonne Region: Boy of 15.

Gers Region: Two boys of 13, separate families.

Sarthe Region: Boy of 17 would like either to visit *au pair* or receive an English boy in exchange.

Vienne Region: Boy of 14. His mother would bring him and would return to France with an English boy.

Landes Region: A young man of 20, who has just finished a year specialising in mathematics. He would like to stay as a paying guest, but would take another boy to his home in exchange if desired. He would like to come to England from about July 15th to August 15th.

Spanish Veterinary Student: A 26-year-old veterinary (final year) student, Pedro Cangas, of Plaza Independencia No. 2, Madrid, wishes to work on a British farm for the summer months, offering his services in order to improve his English. Any reader who may be good enough to help or advise this young man is asked to write to him direct.

BLOOD TESTING OF DOGS FOR LEPTOSPIROSIS

Certain countries require dogs imported from Great Britain to be accompanied by a certificate of freedom from leptospira antibodies, and veterinary surgeons occasionally may be requested to certify accordingly.

It is understood that difficulties have arisen as a result of blood samples being sent to laboratories where this test is not done. Veterinary surgeons are accordingly advised to make sure, before dispatching blood samples, that the laboratory concerned is able to undertake the test.

Enquiries about the import regulations of other countries should be addressed to the Ministry of Agriculture, Fisheries & Food (Export Section), Hook Rise, Tolworth, Surbiton, Surrey. Telephone: DERwent 6611 (Ext. 164).

DR. KENNETH UNSWORTH

Dr Kenneth Unsworth, D.V.SC., M.R.C.V.S., who was formerly Senior Veterinary Research Officer to the West African Institute for Trypanosomiasis Research, has now been transferred to Bechuanaland Protectorate as Deputy Director of Veterinary Services.

PERSONAL

Births

BARNETT.—On March 29th, 1955, to Joyce (*née* Minson) and David Barnett, MS.R.C.V.S., a son, Christopher James, a brother for Gabrielle.

CRAVEN.—On April 13th, 1955, to Elizabeth (*née* Taylor), wife of John R. Craven, M.R.C.V.S., Syston, Nr. Leicester, a son.

GUNNER.—On April 14th, 1955, at Fairfield House, Uckfield, Sussex, to Betsey, wife of Desmond Gunner, B.V.SC., M.R.C.V.S., a daughter, Alison Sarah.

SPIERS.—April 9th, 1955, at "The Elms," Banbury, to Joy (*née* Campbell) and Austin Spiers, MS.R.C.V.S., "Sunrise," Swalcliffe, Banbury, Oxon., a son, Andrew Campbell.

MR. MURDO MacLEOD, M.R.C.V.S.

Mr. D. R. Macrae writes:—

Murdo, who came of Highland farming stock, was quiet and unassuming in manner; but, possessed of a turn of pawky wit, could expand in congenial company.

Educated at Invergordon Academy, he obtained his professional training at the Royal (Dick) Veterinary College, before holding assistantships in varying types of general practice in Scotland and England, finally acquiring a practice in Warrington.

Ill-health forced his early retirement from practice; and now, after a lengthy period of hospitalisation and home nursing, through which he maintained a bright outlook, he has completed his earthly course in the land of his youth, his beloved Easter Ross.

To his sorrowing widow and daughter in their bereavement, goes out the sympathy of all who had the pleasure of his acquaintance.

COMING EVENTS

April

23rd & 24th (Sat. & Sun.). Annual Reunion Weekend for 1952 R.V.C. graduates and contemporaries. Dinner at "Ye Miller of Mansfield" Hotel, Goring, Saturday, 7.30 p.m.

28th (Thurs.). Meeting of the Essex Division, B.V.A., at the Essex Institute of Agriculture, Writtle, 7.30 p.m.

Ordinary General Meeting of the South-Eastern Division, B.V.A., at the Royal Star Hotel, Maidstone, 6.30 p.m.

30th (Sat.). Annual General Meeting of the Association of State Veterinary Officers in the Auditorium of the Wellcome Research Institute, 183-193, Euston Road, N.W.1, 1.30 pm. Annual Dinner at the Criterion Restaurant, Piccadilly, W.1, 7 p.m.

May

3rd (Tues.). Afternoon Meeting of the Eastern Counties Division, B.V.A., at Colchester.

4th (Wed.). Annual General Meeting of the Sussex Division, B.V.A., at the Old Ship Hotel, Brighton, 2.30 p.m.

6th (Fri.). Royal Veterinary College 163rd Annual Ball at the Hyde Park Hotel.

11th (Wed.). Evening Meeting of the Eastern Counties Division, B.V.A., at Ipswich.

Meeting of the Royal Veterinary College Medical Association at Streatley House, Berks, 2 p.m.

General Meeting of the Midland Counties Division, B.V.A., at the Regent Hotel, Leamington Spa, 2.30 p.m.

12th (Thurs.). R.C.V.S. Dinner, Dorchester Hotel.

13th (Fri.). Annual Dinner-Dance of the Chiron Club in the Royal Hotel, Bristol, 7 p.m.

Yorkshire Division, B.V.A. Visit to B.O.C.M. Farms, Selby; meet at 12 noon.

14th (Sat.). Annual Sports Day of the Royal Veterinary College to be held at Streatley, 2 p.m.

18th (Wed.). Meeting of the R.A.V.C. Division, B.V.A., at the Equine Research Station, The Animal Health Trust, Balaton Lodge, Newmarket, 12 noon.

Annual General Meeting of the Veterinary Benevolent and Mutual Defence Society at the Midland Hotel, Manchester, 2.30 p.m.

24th (Tues.). Annual General Meeting of the Society of Practising Veterinary Surgeons at the Royal Station Hotel, York, 2.15 p.m.

June

10th (Fri.). Annual Dinner of the R.A.V.C. Officers' Club, at Grosvenor House, Park Lane, London.

September

4th to 10th. 73rd Annual General Meeting and Congress of the British Veterinary Association at Belfast.

R.C.V.S. EXAMINATIONS

May 6th, Friday.—Pharmacology, etc., Examination (Revised Syllabus). Written Examination.

May 9th, Monday.—Pharmacology, etc., Examination (Revised Syllabus). Oral and Practicals (London and Dublin).

May 12th, Thursday.—Animal Management Examination at Dublin.

May 12th, Thursday.—Entries for D.V.S.M., Examination due.

June 9th, Thursday.—D.V.S.M., Written Examinations commence at Edinburgh.

June 13th, Monday.—D.V.S.M. Oral and Practicals commence.

June 23rd, Thursday.—M.R.C.V.S. Written Examinations.

June 24th, Friday.—M.R.C.V.S. Written Examinations.

June 27th, Monday.—M.R.C.V.S., Practical and Orals commence (Panels "A" and "B").

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Ayr. Briaryside Farm, Monkton, Prestwick (Apr. 12).

Derbys. Swairsley Farm, Milford (Apr. 12).

Dumfries. Gaups Mill, Moniaive (Apr. 14).

Lincs. Rokima, Little March Lane, Fleet, Spalding (Apr. 13); Sholtsgate, Whaplode, Spalding; Bells Drove, Sutton St. James (Apr. 14).

Norfolk. Manor Farm, Happisburgh, Norwich (Apr. 13).

Notts. Newfield Farm, Owthorpe (Apr. 12).

Somerset. Fir Tree Farm, Godney, Wells (Apr. 13).

Yorks. Holme Dale Farm, Dalton Holme, Beverley (Apr. 14).

Fowl Pest

Cambs. Glenalvon, Wimblington Road, March; The Cottons, Outwell, Wisbech (Apr. 14).

Essex. Scotts Hall, Canewdon, Rochford; 134, Station Road, Westcliff-on-Sea (Apr. 12); Moorcroft Smallholding, Moorcroft Avenue, Thundersley (Apr. 13).

Kent. Stanford Bridge Farm, Pluckley, Ashford (Apr. 14).

Suffolk. 157, Tollgate Lane, Bury St. Edmunds (Apr. 13).

Sussex. Moonwod, Horam; Blackdown Farm, Broad Oak, Heathfield; Glen Pig Farm, Sedlescombe Road North, St. Leonards (Apr. 14).

Swine Fever

Ayr. West Heads Farm, Newmilns (Apr. 13).

Berks. Mathews Green Farm, Mathews Green Road, Wokingham (Apr. 14).

Bute. The Steading, Shiskine, Isle of Arran (Apr. 16).

Cambs. Hiptoft Farm, Wisbech St. Mary, Wisbech (Apr. 13).

Bucks. Birkin Manor, Horton, Slough (Apr. 18).

Ches. Flaxyards Farm, Rushton, Tarporley; Checkleywood Lane, Checkley, Crewe (Apr. 11); Cheadle Royal Mental Hospital, Cheadle; 127, Grove Lane, Cheadle Hulme, Stockport (Apr. 12); Stud Farm, Oakmere, Delamere, Northwich (Apr. 15).

Derbys. Ducksett Lane Allotments, Eckington (Apr. 14).

Devon. Sunningdale, Clapham, Kennford, Exeter (Apr. 15).

Essex. The Piggeries, Jenkin Lane, Barking; Fen Farm, Colne Road, Halstead; Brook End Farm, Springfield, Chelmsford; Stapleford Hall Cottages, Stapleford Abbots, Romford; 1, Chase Cottages, Haven Road, Canvey Island (Apr. 9); Bulmer Orchard, Hedingham Road, Bulmer; Crowlands Farm, Romford (Apr. 12); Sheen Nurseries, Holland Road, Little Clacton, Clacton-on-Sea (Apr. 14).

Flints. Garreg Lydan, Bagillt (Apr. 9).

Glam. The Yard, Mackworth Street, Bridgend (Apr. 9); Pant-y-Lladron Farm, Taironen, Cowbridge (Apr. 13).

Kent. Back of Council Yard, The Three Oaks, Jail Lane, Biggin Hill (Apr. 11); The Oasthouse, Way, Minster, Ramsgate (Apr. 14).

Lanarks. No. 1 Holding, West Cochno, Clydebank, Glasgow (Apr. 11).

Lancs. French Barn Lane Piggeries, Blackley, Manchester, 9 (Apr. 9); Bank Hall Farm, Melling, Maghull, Liverpool (Apr. 11); Sunnydene, New Hey Lane, Newton, Kirkham, Preston (Apr. 13); Moor Bottom Farm, Over Wyresdale, Galgate, Lancaster; Croft End Farm, Bardsley, Ashton-under-Lyne (Apr. 14); Pen back of Chaddock Lane, Boothstown, Manchester (Apr. 15); Moss Rose Piggeries, Hickies Lane, Chapel Road, Blackpool; Bleak Hall, Hoscar, Lathom (Apr. (18).

Lincs. Cliffe Farm, Burton, Lindsey (Apr. 18).

Middx. Duckshill Farms Ltd., Duckshill, Uxbridge (Apr. 15).

Monmouth. The Poplars, Nash, Newport; Canal Bank Piggery, Newport (Apr. 12); Piggery, St. Julians Wood, Newport (Apr. 13).

Mont. Hafryn, Llangynog (Apr. 9); Mount Pleasant, Llanfair Caereinion, Welshpool (Apr. 14).

Norfolk. Home Farm, Horsford, Norwich (Apr. 11).

Notts. Low Street, Beckingham (Apr. 13).

Salop. Church Farm, Pelton, Burlton, Shrewsbury; 87, Heath Hill, Sheriffhales, Shifnal (Apr. 11); Ergremont House, Edgmond, Newport (Apr. 12);

Castle Farm, Hadley, Wellington; Oakdene, Shepherds Lane, Bicton (Apr. 13); Brandwood Farm, Myddle, Shrewsbury (Apr. 18).

Staffs. 8, Sandwell Park Lane, West Bromwich (Apr. 15).

Suffolk. Kew Gardens, Hartest, Bury St. Edmunds; Southwood Farm, East Ashling, Chichester; Peckham's Copse Farm, North Mundham, Chichester (Apr. 11); Banham Close, Bedfield, Woodbridge; Erwarton Hall, Erwarton; H.M.S. Ganges, Shotley, Ipswich (Apr. 12).

Surrey. Oak Hill, Wood Street, Worplesdon, Guildford (Apr. 13).

Warwicks. The Lodge, Wallhil Road, Allesley, Coventry (Apr. 11); Arley Lane Farm, Arley, Coventry (Apr. 14).

Worcs. Manor Farm, Manor Lane, Halesowen (Apr. 12); Norton Farm, Birmingham Road, Bromsgrove (Apr. 14); 123, Vicarage Road, Langley, Oldbury, Birmingham (Apr. 15); Hilltop Farm, Newland, Droitwich (Apr. 18).

Yorks. City Abattoir, Water Street, Manchester (Apr. 12); Breeze Farm, Breeze Lane, Beeford, Driffield (Apr. 13).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

LIFE CYCLE OF *HEXAMITA MELEAGRIDIS*

Sir,—In the paper on "Hexamitiasis in Turkeys" (*Vet. Rec.* **67.** 236) J. W. Wilson & D. Slavin refer to the occurrence in *Hexamita meleagridis* of a "schizogony cycle," which gives rise to "numerous merozoites" or "invasive forms." The latter are said to develop into "mature" flagellates, which in their turn produce resistant cysts. When these hatch, the flagellates liberated from the cysts are transformed into schizonts, and the life cycle is repeated.

Readers not familiar with *Hexamita* might form an erroneous impression that this remarkable life cycle is an established fact, but those who have some knowledge of these flagellates cannot allow the authors' statements to go unchallenged.

Since the present paper does not provide the necessary evidence, we must turn to a previous paper by the same authors (*Nature*, **172.** 1179) for enlightenment. From that account it would seem that the young "schizont" contains, in addition to a nucleus, a "round blue body" which—in some unaccountable way—"appears to play an essential part in the division of the chromatin," while the mature "schizont" contains seven "chromatin bodies" (presumably nuclei). It would appear that segmentation of the "schizont" has not been actually observed, and "there is still some doubt of the reproductive process at this stage." Nevertheless certain uninucleate bodies are interpreted as "merozoites," and their development into flagellates has been "clearly traced." The authors further admit that "some gaps in the life cycle have had to be filled in deductively." Finally, the figures purporting to illustrate the stages of development of this flagellate are utterly unconvincing, and might actually represent non-parasitic cellular inclusions.

From the authors' own statements, therefore, it can only be concluded that the life history of *H. meleagridis* described by them is largely imaginary, and cannot be accepted without more plausible evidence.

Yours faithfully,

CECIL A. HOARE,

The Wellcome Laboratories of Tropical Medicine,
183-193, Euston Road, London, N.W.1.

April 12th, 1955.

PIG OEDEMA

Sir,—With reference to Mr. Walther's letter of April 9th, may I ask him if any difference has been made in the manufacture, or in the composition, of pig feeding meals, etc. during the last year? If his answer is in the negative (and I imagine it will be), then we can rest assured that this disease is of bacterial and not of dietetic origin. The manner in which it became prominent a few years ago, and now has died down to become rare, points to that conclusion. As with other epidemics it appears to have died a natural death and without any assistance from us, as by slaughtering or wholesale vaccination. Mr. Walther recommends a light diet and a laxative (Epsom salts) but that is the general treatment for nearly all bowel ailments and is usually effective. Starvation is a wonderful remedy for bowel troubles also, but because it does not cost anything it is not appreciated. In my opinion pig oedema is a bacterial condition and in treating it the best success I have experienced is from a vaccine made from *B. coli* of pig origin. Nevertheless, I should appreciate a letter from Mr. Walther in reply to my enquiry.

Yours faithfully,

G. C. LANCASTER,

Eastwick House,
Evesham,
Worcs.

April 18th, 1955.

THE REGISTER OF VETERINARY SURGEONS

Sir,—The comparatively large numbers of voluntary—and involuntary—resignations from membership which have taken place as the result of the recent decision of the Royal College to increase its fees has given rise to an interesting situation which is perhaps worth a moment's consideration.

The removal of names must be accompanied by a reduction of income and should the process continue at the present rate the Royal College may very well find itself in possession of something in the region of its original annual revenue in spite of considerably enhanced fees. Should this situation come about the brethren will undoubtedly once again be approached for further alms in the shape of still higher fees—a denouement which will certainly be accompanied by

still further resignations until the point is reached when the governing body will depend for its support on a band of a few hundred die-hard—and opulent—members, each paying something approaching £20 per annum for the place in the Register to which *prima facie* they were entitled from their having satisfied the examiners of their competence to practise veterinary surgery, and paid the statutory fee demanded for registration.

Yours faithfully,

R. H. A. MERLEN,

Royal Veterinary College and Hospital,
Royal College Street,
London, N.W.1.

April 13th, 1955.

BENZENE HEXACHLORIDE NOMENCLATURE

Sir,—There would appear to be a widespread misunderstanding which has even appeared in Government publications such as "Memorandum on Measures for the Control of Mosquito Nuisances in Great Britain, 1954," as to the correct description of the insecticidal material known as benzene hexachloride or, as it is commonly termed, B.H.C. (gamma isomer). Benzene hexachloride is in strict chemical terminology 1:2:3:4:5:6-hexachloro*cyclo*hexane and this correct chemical description is commonly used on the continent. B.H.C. as primarily produced is a mixture of numerous isomers of which the gamma isomer is outstandingly the most active and it is on the content of this isomer that standardisation is carried out. The term "Gammexane" is the registered trade mark of one producing company of B.H.C. and for products manufactured by them containing it and therefore the name "Gammexane" applies only to those products produced by the owners of that trade mark and is not standardised.

B.H.C is now produced almost all over the world in various concentrations of the gamma isomer and manufactured products containing the insecticide are also widely produced. The pure gamma isomer is now known fairly generally by the term "Lindane" although this term is not included yet in the British Standard Recommendations for common names for insecticides. None of the names recommended by the British Standards Institution has any proprietary implication neither has Lindane. It is therefore only necessary to indicate the content of gamma isomer B.H.C. in recommendations unless one is anxious to describe the material in the strict chemical form. While there are notable differences in effectiveness between compounded preparations, the use in literature of a proprietary trade mark to describe an insecticidal substance in world-wide manufacture and use, is liable to cause confusion and lead to misapprehension and should be avoided.

Yours faithfully,

KARL B. EDWARDS.

Ormond Laboratories,
12, Whidborne Street, W.C.1.

March 29th, 1955.

PREGNANCY TOXAEMIA IN EWES

Sir,—I am grateful to Mr. P. L. le Roux for having drawn my attention to "Pregnancy Toxaemia in Grassland Flocks," by Dr. J. R. Holmes, which appeared in THE RECORD of May 16th, 1953. Running through Dr. Holmes's contribution is the theme of carbohydrate insufficiency. "Either lack of sufficient carbohydrate-forming material in the ration or an insufficient body store of carbohydrate," or, "Exercise may be effective by unlocking stores of muscle glycogen and rendering them available as a source of assimilable carbohydrate." Finally, Dr. Holmes emphasises supplementary feeding as a preventive without suggesting the relative importance of protein over carbohydrate. May I hasten to add that I believe he is gathering a concensus of opinion rather than stating his personal views.

Dr. Holmes's contribution is very similar to that of the Technical Development Committee of the B.V.A. as expressed in *Diseases of Sheep, 1955*, which emphasises in aetiology a disturbed carbohydrate metabolism, depletion of glycogen and a corresponding hypoglycaemia. On the other hand I must admit that the Technical Development Committee in the same thesis emphasise a high albuminoid ratio in the ration as a preventive measure. I feel that the committee has started with the wrong causative factor in view, and has finished with the right one; they have started on the wrong foot but come in easy winners.

With regard to Mr. le Roux's excerpts from Robertson (1885) I fear I cannot accept them. Mr. Robertson takes a poor view of winter grass as a source of protein. All the evidence, as he himself admits, is against him.

My opinion, as I attempted to make clear in my previous letter, is that grass growing in winter is a very good source of protein upon which the flockmaster depends to a greater degree than he realises, and that when this source of protein fails his supplementary ration does not contain sufficient protein to replace it. The pregnant ewe suffers a sudden fall in protein intake and pregnancy toxaemia occurs even though the carbohydrate intake is maintained at a high or even very high level.

Yours faithfully,

J. P. PICKERING.

Orchard House, Priestpopple,
Hexham, Northumberland.

April 10th, 1955.

ANTI-DISTEMPER CAMPAIGN

Sir,—Some weeks ago I proposed in your columns a discussion on the possibilities for a mass inoculation of dogs against distemper through a united campaign by the animal welfare societies, publicity agencies, the animal-loving public, the drug firms, and the veterinary profession. To my surprise not a single reply has appeared on this proposal. Is no one interested?

There has now been a "welcome" reduction in the price of the necessary vaccine. One hopes that this reduction will be passed on to the consumer; or

could we say to the dog? Mass inoculation should be our aim and for this the essentials are cheap vaccine and low fees.

Our profession should be prepared to help in such an organised campaign by agreed fee reduction.

Yours faithfully,

JOHN M. MITCHELL,

101, Sternhold Avenue,
Streatham Hill,
London, S.W.2.

April 13th, 1955.

ACETYLAMINO-5-NITROTHIAZOLE FOR THE PREVENTION AND TREATMENT OF BLACKHEAD IN TURKEYS

Sir,—Grumbles and co-workers in 1952, whilst discussing the use of 2-amino-5-nitrothiazole for the prevention and treatment of blackhead in turkeys, mention that 2-acetylamino-nitrothiazole was also effective in the control of this disease. We decided, therefore, in 1953, to carry out comparative trials on turkeys experimentally infected with blackhead using both drugs at similar dosage levels.

Fifty day-old turkey poults were reared under "dull emitter" infra-red lamps, and the birds were artificially infected with enterohepatitis by giving each bird, at seven weeks of age, approximately 1,000 embryonated heterakis eggs.

Where treatment was given the birds received the drugs incorporated in the mash. Birds on the preventative level of the drug received treated mash from the day of experimental infection and treatment was carried on for 30 days. Where birds were on the curative level, treated mash was given when the first bird in the group showed clinical signs of blackhead. This occurred on the eleventh day after infection in both cases. The mash was fed at the curative level for 14 days and then at the preventative level for a further seven days.

Ten birds were used in each group except Group 4, in which six only were used as coccidiosis occurred before the experiment started.

The results of the trials were as follows:—

GROUP 1. *Prevention*—0.05 *per cent. amino-nitrothiazole*:

One bird, which was otherwise healthy, had to be killed during the experiment because of leg weakness. No clinical signs of entero-hepatitis occurred. Six birds had lesions in the caeca or rectum when killed, but none showed any liver lesions.

GROUP 2. *Prevention*—0.05 *per cent. acetylamino-nitrothiazole*:

No deaths and no clinical cases of entero-hepatitis. One bird showed small lesions in the liver and caeca on *post-mortem* examination. The remaining nine birds were all normal.

GROUP 3. *Treatment*—0.1 *per cent. acetylamino-nitrothiazole*:

One death from entero-hepatitis 42 days after infection. (21 days after cessation of treatment.) This bird had extensive, old standing lesions in the liver and caeca. Seven of the nine remaining birds had lesions in the liver and/or caeca.

GROUP 4. *Treatment*—0.1 *per cent. amino-nitrothiazole*:

No death. Five birds out of six showed typical lesions on *post-mortem* examination, including three with liver lesions.

GROUP 5. *Control*:

Seven deaths from entero-hepatitis occurred—16, 18 (4), 23 and 61 days after infection respectively. Symptoms were noted simultaneously in six birds on the twelfth day after infection. All birds that died had advanced lesions in the liver and caeca. Of the three surviving birds, two had lesions in the liver and one showed no lesions.

In view of the high incidence of disease in the control group it was considered that this trial demonstrated that the acetyl form of amino-nitrothiazole was as active in the control of blackhead as 2-amino-5-nitrothiazole.

As this new form of the drug was likely to be fed to turkeys which would subsequently be used for breeding, an experiment was carried out in which both cock and hen turkeys were kept on the preventative level of 2-acetylamino-nitrothiazole throughout the spring and early summer.

Records were kept both on the hatchability and fertility of the subsequent eggs laid and compared with a control group not receiving the drug. The results of the trial showed no difference in either the hatchability or the fertility as a result of the birds being fed on the preventative level of the drug.

Yours faithfully,

G. C. BRANDER,
J. C. WOOD,

The Cooper Technical Bureau,
Berkhamsted, Herts.

VETERINARY SURGEON EMERITUS

Sir,—Captain G. C. Lancaster asks "What is a guinea a year?" That question can cut both ways. Is the R.C.V.S. "so financially embarrassed" that it cannot carry a few old members on the free list without bothering too much about their circumstances? Captain Lancaster considers the non-payment of these fees a sign of having lost all interest in life. With greater justification it might be considered that the R.C.V.S., by the removal of the 84 names, has gone some way towards losing its soul.

I have paid my guinea because I am proud to be on the list, and because I find a great interest in going through the annual issues of the Register. This recent action of the R.C.V.S. cuts down my pride (slightly) and (more seriously) lessens my interest. But Captain Lancaster must not think this is a sign of my having "lost all interest in life." So long as I am able to exercise a choice as to what to do with a guinea, some interest must remain.

Yours faithfully,

ESMOND BROWN,
(1904 issue)

Lan House,
Weston Road,
Bath.

April 3rd, 1955.